Spears General Technic - R. J. Watkins, D.C.

This is an extension of a motion palpation. It can elicit much useful information on joint mobility and limitations due to tenderness, spasms or adhesions. When done properly and gently it will correct minute subluxations, overcome much muscle contraction and facilitate any subsecuent specific moves. It also helps to locate subluxations which have minimal malposition.

Technic - Patient prone. Begin at T1. Lay hypothenar eminence (heel of the thumb) over TVP on one side of the spine. Then lay the same contact (#4) of opposite hand over the opposite TVP. Stand with shoulders parallel with the patient's shoulders.

Apply the force in three distinct downward movements, press lightly, press more firmly and then press quite firmly. This NOT three jabs but smoothly increasing pressure in 3 distinct steps. The counterpressure hand is not thrusting but is a counterbalance.

Now move the contacts footward one segment and repeat the thrust, thrust, thrust. Move again and repeat continuing footward to the sacrum base. Then start at T1 again with the other hand thrusting in 3 gentle steps down the opposite side.

After 2 or 3 such passages down the spine, each pass a bit heavier, the patient will have relaxed better, minor subluxations are cleared and the majors are pinpointed more definitely. Also the patient muscle response will be an excellent guide to further specific thrusts.

Another big advantage is testing of ligament elasticity. Some persons have very flexible joints which have an extreme range of motion. It is almost impossible to take up the slack which makes a short fast thrust much more effective. Some have very short ligaments with practically no stretch and little mobility. They need an entirely different thrust for most effective mechanical advantage. This differentiation can be easily perceived during several trips down the spine.

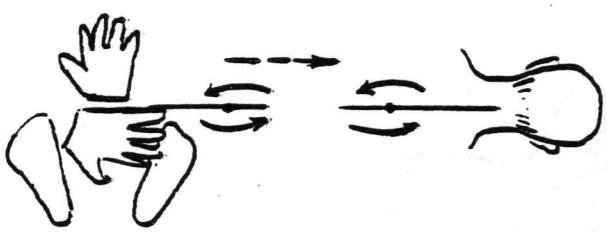
Contacts in thoracic region are about 1 1/2 inches lateral to the midline down to T9 but T10-12 have much shorter TVP. Contacts must be much nearer the midline and continuing on the mammillary processes in the lumbar spine. The lumbar transverse processes are long and thin to accommodate vertical stress but not horizontal pressures when standing. They can be snapped quite easily as does occur with football injuries.

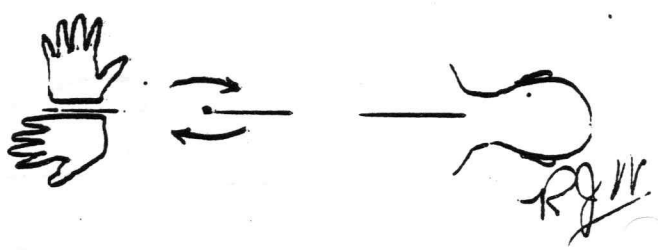
Burich's Variation of General Adjustment - Torquing

Some persons cannot pronate the wrist enough for an effective thrust on the hypothenar eminence (nail point #4) so they use the soft edge of the fifth metacarpal rolled up just enough to avoid the discomfort of a sharp pisiform contact. The hands are crossed with the adjustor standing with shoulders parallel to the patients spine.

1. Stand at patient's right side facing across the spine.
2. Left metacarpal soft edge slides headward against the right side of the sacral tubercles. The skin is dragged headward enough to remove the slack and avoid slippage with the thrust.
3. Right hand, heel of the hand drags the skin footward against the far side (left) of sacral tubercles, fingers perpendicular to the spine.
4. Light and then firmer pressure is exerted putting counterclockwise torque onto the spinal column, right TVP headward , left laminae footward. This is NOT twisting the skin but is putting force thru a long helix as the pressure is moving ventral.
5. Move headward to cover L5 & L4 and repeat the multiple pressure torquing left hand on right mammillary process headward and right hand on left spinous-lamina junction pushing footward.
6. Move headward to L3-2-1 repeating the torque. Force is in a ventral helix.
7. Move up to T12, 11 & 10 with TVP contact very close to spinous. Repeat the torque in multiple stages, gentle & firmer.
8. Move headward along each thoracic segment up to T1. Repeat the torque.
9. Start on sacrum with a reversal of the torque. Right hand, 5th metacarpal sliding skin footward along right side of sacral tubercles.
10. Left hand, heel of hand drags skin headward along the left side of sacral tubercles, fingers are perpendicular to the spine. Torque.
11. Move up to L5 & L4 to repeat the torque clockwise.
12. Move headward to repeat the torque up to T1 in short steps of 1 or 2 segments. This entire process can be repeated several times up each side with gradually increasing pressures.

This procedure will move many minor subluxations, test mobility, test ligament flexibility to indicate the depth of any specific thrusts and will help to pinpoint any major subluxation or locate a new problem.





Occiput Subluxations

Any occiput subluxation has to be Occ-C1 joint level. Looking for a tilt, low ear or other sign can be due to short sternomastoid, bent spectacles, torticollis from lower subluxations or occasionally an Occ-C1 subluxation. Palpation of C1-TVP-mastoid relationship, static and in motion is mandatory. Intrinsic muscle balance and nerve tracing of C1-C2 distribution helps verify the subluxation. X-rays help evaluate unequal condyles.
Laterality is the result of hypertonus of rectus lateralis and superior oblique on the same side. Rotation can be rectus lateralis pulling one condyle posterior or by superior oblique pulling the condyle anterior. Either condyle can subluxate independantly in rotation so posterior on right is NOT the same as anterior on left. An Occ-C1 flexion subluxation can put BOTH condyles posterior and can be adjusted as P on L AND then P on R.

Adjustment - Rotation - Sitting - Occ P on Rt.

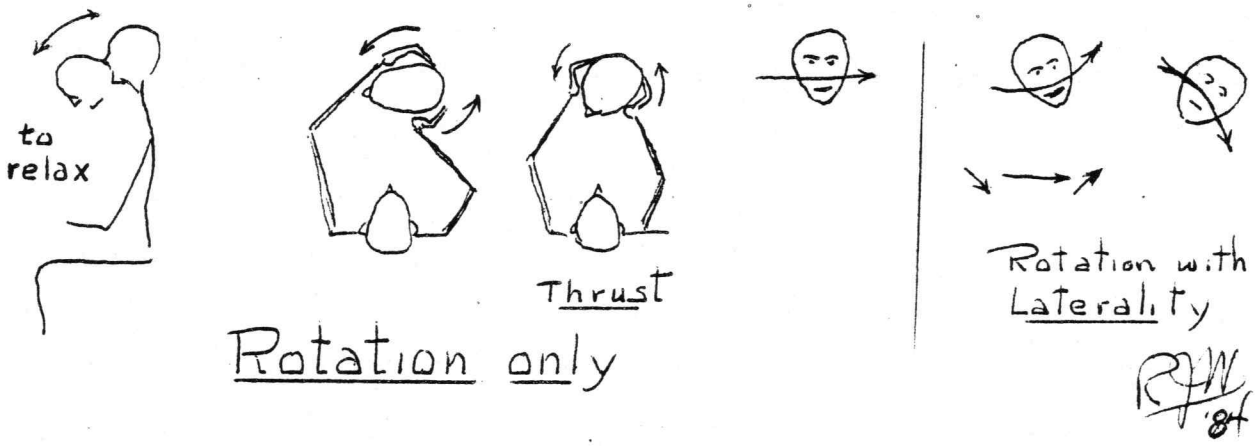
1. Patient seated, hands in lap. Stand at patients left shoulder.
2. Left hand contact, finger tips pull forward against right mastoid and occiput. Hand arched over ear, heel contact pulling forward to zygoma.
3. Right hand almost exactly opposite pushing back against zygoma.
4. Both thumbs pointing up on temples to give control flexing & extending neck.
5. Rotate head to the left to a comfortable maximum, back off to relax.
6. Raise and lower head with thumbs if needed for further relaxation.
7. Thrust - totally rotation of occiput on C1. (Atlas is stabilized by the ligaments to C2 and downward) Speed helps.

Rotation - Sitting - Plus slight laterality.

Seldom is there rotation without slight laterality or laterality without rotation. The combination of muscle imbalance makes an infinite variety of exact directions for optimum correction. Hence slightly stressing the joint to feel the feedbackof tonus of muscles and ligaments is the most valuable portion of the ART of chiropractic. Gradually we get the "feel" of where the joint is in optimum position and that it is "ready to move". Since the laterality is usually much less than the rotation portion it is well to follow the above procedure down to #6. Then modify as follows:

1 to 6 Exactly as above

Now in step 6 use the thumbs to guide the lateral bending of the Occ-C1 joint level. Gentle stressing in the probable correct thrust direction will either elicit thorough relaxation when correct or slight increasing resistence when NOT exactly the correct direction.
7. The thrust will now be rotation PLUS the slight lateral tilt - with speed.



OCCIPUT - Supine

See commentary on subluxations and their mechanics from the other sheet on sitting moves for occiput subluxations.

Supine - laterality - Occiput rt. on C1 (left lateral bending, condyles rt)

1. Patient supine, stand at patient's head.
2. Roll patient's head to the right onto the right hand.
3. Left hand lightly grasp sternomastoid pulling skin headward, fingers behind occiput.
4. Turn head to left. Left hand supporting to give traction thrust.
5. Slide right pisiform downward against right zygomatic arch.
6. Reduce head rotation and test lateral bending contact security by left hand traction and right pisiform thrust footward. This is to laterally bend the joint to correct the subluxation.
7. Relax and thrust with speed.

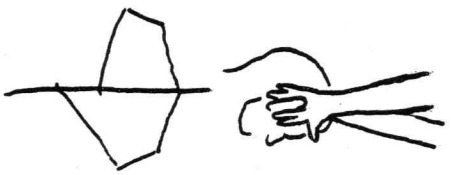
Supine - Rotation - Occiput Posterior on Right

1. Patient supine, stand at patient's head.
2. Roll patient's head to the right.
3. Left forefinger pulled up between mandible and mastoid, three fingers under occiput.
4. Rotate head to left supported in left hand.
5. Right hand almost exactly opposite left hand, fingers astride the right ear.
6. Elbows low and close together in line with the spine. Rotate head by pronation-supination of forearms to attain best relaxation.
7. Turn head to left to comfortable maximum, back off slightly.
8. Relax and thrust - rotation only, face to left, no lateral bend.

Laterality

Elbows Together
in line
with spine

Equal Thrust
Both Hands



Rotation only

RJK 84

JOINT FUNCTION - Ronald J. Watkins, D.C.

Skeletal flexibility is necessary for any movement. Joints are made to move. This is their primary function. Muscles are made to move the joints. Hence we should consider the two major types of spinal joints, the freely movable diarthroses and the semimovable amphiarthroses. The posterior diarthroses have gliding surfaces and need a constant lubrication. This means a capsular ligament with secretory cells to maintain optimum lubrication. Motion is limited by strong check ligaments and by antagonistic muscle action. The muscles have sheaths of fibrous tissue which like the ligaments are in a continual state of shrinkage to remove unneeded slack. Thus if a joint is moved daily thru its entire range of motion the fibrous tissue is stretched to its optimum length. Immobilization induces continual shrinkage and loss of motion. In addition muscle action promotes trophic reflexes which maintain bulk and strength. Immobilization reduces proprioceptive input which is the sensory arm of the trophic reflex and promotes atrophy of muscle as well as shrinkage (contracture) of ligaments and fascia.

A joint and its activating muscle form a functional unit which is maintained by use. Gradual increase in action and loading will induce hypertrophy of both the muscle and the bone. Disuse induces atrophy. Therefore it is imperative to maintain joint action. Otherwise adaptability diminishes and leaves that area more vulnerable to many types of injury. There are sensory nerve endings in and around joints specifically designed to report on loading and position. They are called proprioceptors. Each of the thousands of proprioceptors at each joint is reporting information at least once per second during sleep and up to 1,500 per second during action. This vast barrage of LOCAL SENSORIAL CONVERSATIONAL TONE is processed by the supercomputor in each segment of the cord and is correlated in the brain stem, cerebellum and cerebral cortex to maintain all skilled activities. Any distortion of this information input disturbs the total function and will be discussed later.

The second general type of joint, the amphiarthrosis is typified by the intervertebral disc. This also allows motion but not gliding. Hence it is bending and twisting that occurs thanks to the strong fibrous ring as a band with the jelly center as a fluid cushion shock absorber. These joints also have check ligaments, activating muscles and abundant proprioceptive endings. The vertebral joints from C2 to L5 have both discs and diarthroses to efficiently handle the needed functions and loads. Now let us consider normal and abnormal loading.

Normal loading and use of every joint is vital to joint maintenance. After three weeks of zero gravity the space folk showed up to 60% loss of calcium in the calcaneus. Loading induces a piezo-electric effect within the bone which is a part of Wolf's Law on bone remodeling. Still this has a neural component usually overlooked. Where the sensory pathway is cut or distorted there is the same piezo-electric phenomenon BUT NO remodeling and repair. The result is neurotropic arthropathy typical in Charcot's joint, diabetes and leprosy. Hence the cybernetic mechanism known as the trophic reflex with its proprioceptive sensory component is a major factor in slow healing of wounds and in many arthritis cases.

Normal loading of bone is needed to maintain bone mass, i.e. disuse atrophy follows no load. Normal strain on the activating muscles is needed to maintain muscle bulk and muscle strength. Hypertrophy and atrophy are the function of use & disuse. Joint excursion is needed to stretch the ligaments, the muscle sheaths and the fascia to prevent shrinkage and contracture. Again the neural component is overlooked, but critical.

Overload of any joint takes several forms. Overload of stress in the neutral position if minimal will induce quite even hypertrophy of the bone and cartilage. If the overload exceeds structural limits the cartilage plate which is the weakest spot in the intervertebral joints will show impaction end plate fracture. If the joint is near maximum flexion with sudden heavy overload there is usually vertebral body compression fracture with AP wedging. The intervertebral disc is much stronger than the body and never ruptures unless it has been weakened for a long time. Hence disc rupture implies chronic subluxation with recurrent meningeal nerve dysfunction for many months or years.

Sudden heavy overload of the cervical spine in extension can crush an articular process but they are normally very strong. More often there will be pedical fracture. Another heavy sudden overload, not of compression but of severe hyperextension has torn anterior ligaments produced avulsion fracture and even split a vertebral body. A seat belt buckle fulcrum during severe hyperflexion has split the entire neural arch and torn the top half from the bottom. Such injuries are rare. Much more common injury is the pinching of capsular ligament and other joint structures when the joint buckles. This buckling is usually a surprise stress with long muscles contracting before the intrinsic muscles are "Set". The pain causes a reactive muscle "splinting" to prevent further injury. This prevention of getting worse can also prevent normal improvement. If the sensory proprioceptive input is distorted the post traumatic subluxation may persist with the muscles and ligaments undergoing contracture (shrinkage) and hence become pathogenic.

Moderate joint overload over a short time has minimal effects. Prolonged overload but with adequate resting intervals and sleep time for repair of injury induces hypertrophy of bone, muscle and ligaments. If this overload is continued with "double shift" work and minimal rest the joints will show cartilage thinning and the broadening of the joint to carry the overload. This is the classic osteoarthrosis in extremities and spines. It is a distorted repair process to meet the need.

In children with normal epiphyseal plates the sudden heavy overload or the continued moderate overload will cause epiphyseal fracture or an epiphysitis. This is the "little league" elbow, the knee & ankle plate separations of sports injuries. The most neglected problem of athletic injuries is the "double" injury. A slide that jams an ankle usually will subluxate a low lumbar joint, delay the healing and prolong recovery. Then too there are osteochondroses with no history of

direct joint injury. Perthes disease has epiphyeal fragmentation due to proprioceptive input distortion which has continued for months following a lumbosacral subluxation, minimal but long forgotten. So it is clear that the infinite variation of joint overload at the spine in the sensory and trophic pathway as well as peripheral joint overload can explain much of the varied pathology of injury. Add this to hereditary weakness to make for an infinite complexity.

Use it or lose it applies to the joints and their activating muscles. Loading must be within the range of adaptability. Beyond that range the overloading can start arthritis, arthroses, fractures, tears, epiphysitis, osteochondrosis, osteochondromatosis, bursitis and others. All these are from distortions of the neural mechanism at the segment of the cord supplying the joint.

After realizing some generalities of peripheral and spinal joint function we can better consider a special joint problem known as a subluxation. Spinal joint problems are much like other joint problems plus additional neurological insults. A sprained thumb or ankle will be favored during healing without causing other major problems. Any spinal joint sprain can likewise heal quite rapidly without complications. Most minor spinal sprains do heal uneventfully but there is an exception. That is the time when there is a distortion of the sensory nerve input at the level of the injured joint. If a person sees a slight step down he can manage very well. However if he unexpectedly steps off a curb the body reacts to the emergency. If the body is well trained and in fine condition this jolt is absorbed easily. If tired or weak the spine may buckle with the long muscles jerking into action before the short intrinsic muscles have the spinal joints stabilized and ready for the sudden move. This may pinch the articular capsule and shoot a barrage of emergency warnings into that segment of the spinal cord in a very distorted manner. If the nerve system recognizes the actual positioning of the joint it can be recovered quickly but if the message is badly garbled there is inappropriate response. Short muscles contract quickly to stabilize the joint and prevent further damage but with the distorted messages the contractions persist much too long and prevent normal recovery. Even this is not devastating except for the fact that in this same spinal segment are the reflex pathways and the controls of skin temperature and of visceral function. People with a severe whiplash injury at the brain stem level often have hot and cold flashes for weeks after the injury. Others have serious vertigo or visual disturbances. If there is double injury with upper cervical and mid-thoracic subluxations peptic ulcers often develop. Correction of these two subluxations induces rapid healing of the ulcers. What is a subluxation? It is the spinal sprain which is distorting the sensory input in turn causing altered efferent function. The total integrative function of that segment is distorted. Signs and symptoms of a subluxation include altered motion, altered sensations (usually pain of paresthesias) and aberration of some or all functions served by that cord level. If this is prolonged there can be slow

disintegration or chronic malfunction of the entire periphery. The cybernetic mechanism known as the trophic reflex with its proprioceptive sensory component is a major factor in most pathologies whether ulcers, pneumonia, arthritis or slow healing of wounds. Therefore subluxation recognition and correction is really an ultra-specialty. Intervertebral subluxations have a very wide range of side effects. This is truly the core of chiropractic science and art.

Joint function is the basis of body motion and flexibility. Increased flexibility means increased adaptability. Conversely loss of flexibility is loss of adaptability directly related to physical health. Exercise to promote flexibility is a critical part of any health program but if carried to extremes will inflict several types of joint injury. Joints are to be loaded and worked but not to be dangerously overloaded. One excellent indicator is comfort tolerance. Any joints can and should be worked until tired and almost sore to attain most rapid build up. Any overload should be carefully monitored. Build up of body flexibility and adaptability promotes health. It is much more logical than fighting disease. Shoveling darkness from a room is not as effective as turning on the light. Build up adaptability and the incoordinations called disease will disappear. Yes, joint function is important. Exercise to maintain flexibility is very important but overloading is hazardous in many ways. Maintain flexibility & with it health.

RJW:clh

POSSIBLE CONFUSIONS in ADJUSTING SUBLUXATIONS

R. J. Watkins, D.C.

Subluxation is of a joint - not of a bone, there must be 2 articulating bones. Listings indicate contact points and direction of force. Therefore one subluxation can be sacroiliac hyperflexion. Listing can be any one of: Ilium posterior or PI, sacrum base anterior, inferior or AI, sacrum apex posterior or ischium posterior. Many different technics of corrective force have been used with varying efficiency. These SIX listings all relate to the same subluxation which is a persistent joint disrelationship with patient standing, sitting, prone, supine, lateral recumbent or even hanging head downward.

Subluxation of right occipital condyle on right lateral mass of C1 in extension is induced by trauma causing right obliquus capitus superioris contracture(sustained hypertonicity with fascia shrinkage increasing with lack of stretch during normal motion). Listing can be Occiput anterior on right, RA, inferior on right, Atlas posterior on right, RP of AIRP. These SIX listings all relate to the single, simple Occ-C1 subluxation of right condyle extension. With head fixed on a table support atlas can be thrust effectively. With head turned to maximum the resistance of spinal check ligaments of C1 downward will allow a fast thrust of occiput rotation to move occipital condyle forward onto atlas lateral mass. The atlas contact can move atlas lateral mass under the occipital condyle but the adjustment is of the joint, NOT the bone. (Fig 1)

Subluxation of C7 on T1 with C7 PR and T1 PL is a single level joint disrelationship. Turning the head to face left will posturally aggravate the subluxation. Turning the head to face right will improve the subluxation. Hence with patient prone and the face turned right we can use pisiform recoil to drive C7 PR spinous downward, right to left. We can use a thumb tip against left side of T1 PL spinous to drive horizontally from left to right but this requires stabilization of the neck with the right hand and a stretch of the neck to open foramina further by headward traction, right thumb under occiput to stretch, NOT laterally bend the neck. Or we can add to the thumb T1 PL spinous contact a left knuckle contact on left C7 transverse (post. on left and inferior on left or LI) to simultaneously thrust T1 spinous left to right and C7 left transverse posterior to anterior. Or the patient can be sitting to rotate C7 on T1 while T1 is stabilized by ligaments to the body below, rotating the entire neck as a unit face to the right with a finger contact on C7 left TVP. (Fig 2)

One deplorable confusion in adjusting is with the so-called "rotatary break" cervical move. With any shoulder, arm, elbow or wrist pain there is most often either C5 of C6 neuralgia due to foraminal occlusion. With C4 spinous right (PR) and C5 spinous left (PL) the C4 disc is torqued and wedged thin on the left with left foraminal occlusion causing the left C5 neuralgia (supra and infraspinatus, deltoid, pronator teres, lateral epicondyle, back of the wrist and flexor pollicus brevis tenderness). One technic says that disc bulge on the thick side causes the symptoms so extend the neck to open the disc space and allow disc movement. Probably 90% of symptoms are from foraminal occlusion and not from stretching. Hence flexion of the neck opens foramina, rotation away from occlusion further opens the foramina. Now with patient either supine or sitting flex the neck, rotate the head away from occlusion and thrust the posterior (Fig 3)

articular process (not TVP) from posterior to anterior. This rotating C4 and the neck above as a unit on C5 stabilized by the body below. This is best done with the neck in flexion. This is a "rotary move". The "break" part of the "rotary break" is lateral bending of the neck which CLOSES the foramen on the concave side. Worse yet the thrust toward the axis of the spine is driving at 90° to the plane of the articular facets so that overly heavy force is often used and becomes painful. Hence I cannot condone any "rotary break" below Occ-C1. A modified "break" can be effective but this would be on the spinous process not the articular pillar. The thrust will be not into the axis of the spine but at a tangent and from the side opposite the foraminal occlusion. Hence any incidental lateral bending will OPEN the foramen. This is usually done with patient supine.

The second deplorable confusion in adjusting is the side posture "sacroiliac" adjusting. Whether the sacroiliac joint is flexed (ilium PI) or extended (ilium AS) the patient is placed lateral recumbent with hip flexed, thigh about 90° to the torso. Then a pisiform contact is placed on the posterior superior spine to thrust in any of 4 vectors (cephalad, caudad, medial, lateral or combined) This is like trying to open the door by thrusting against the hinge side. No wonder heavy force has been used with discomfort to adjustors shoulder and patients lumbar spine. This torque can further tear a herniated disc. Why not extend the flexed sacroiliac (ilium PI) by extending the hip, leg straight, foot behind opposite foot with pisiform contact not at the hinge area (PSIS) but as far out on the iliac crest as is workable ? The leverage is immensely better. With an extended sacroiliac joint (ilium AS) flex the hip with patients knee against his chest and with palm cupped over the ischial tuberosity. The thrust is toward the patient's chin to move the sacroiliac joint. Yes, these contacts will move the innominate on the relatively stable sacrum but this is not adjusting the ilium or the ischium. Those are contact points to move the sacroiliac joint. With the patient prone on a table the more effective contacts will be sacrum base or apex to move the more mobile sacrum against the innominate fixed by the table. The adjustment is still of the sacroiliac joint and not of a bone. (Fig. 4)

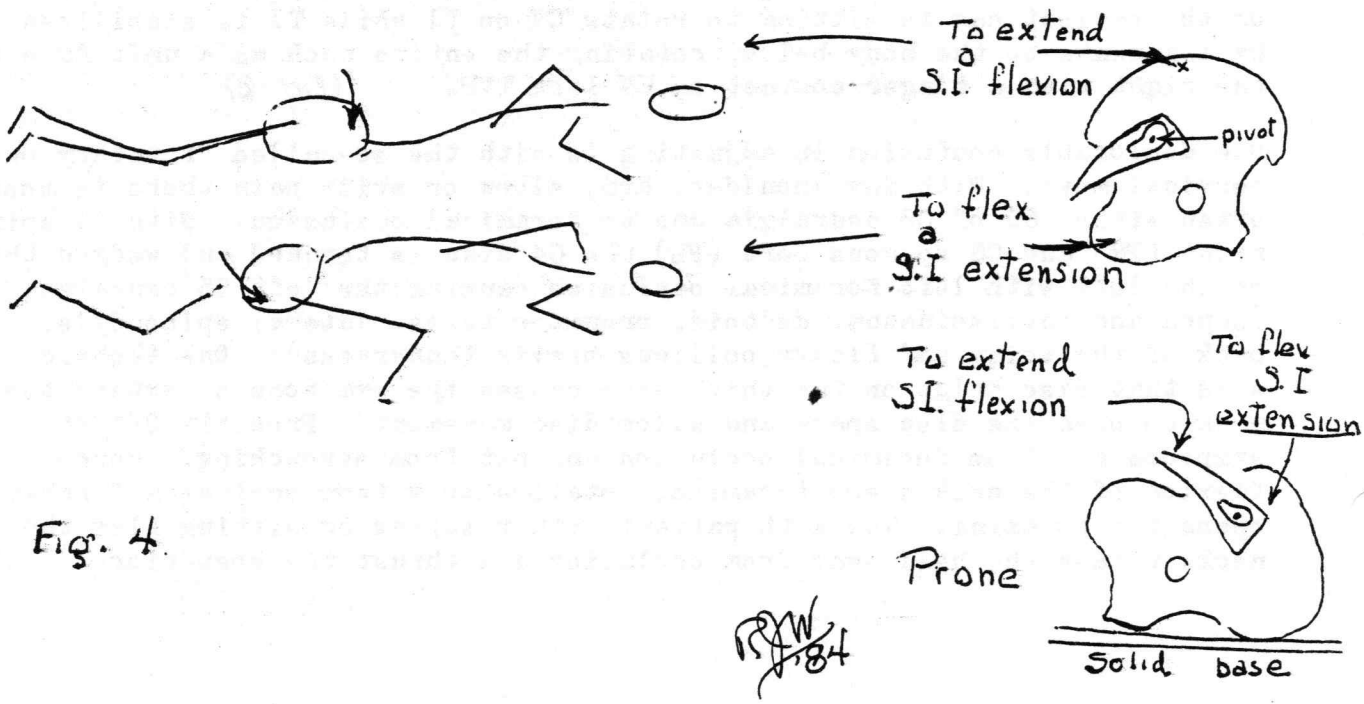


Fig. 4

RJW '84

Fig. 1.

Rt. Occ. condyle extended on rt. C1 lateral mass by Sup. Oblique

Occ. Ant. on Rt. dropping inferior on right (at back) or "jamming".

C1 Post on Rt.. R.P. or AIRP

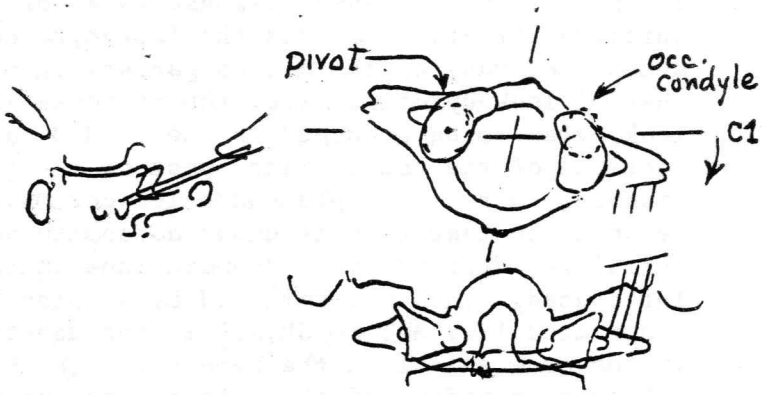
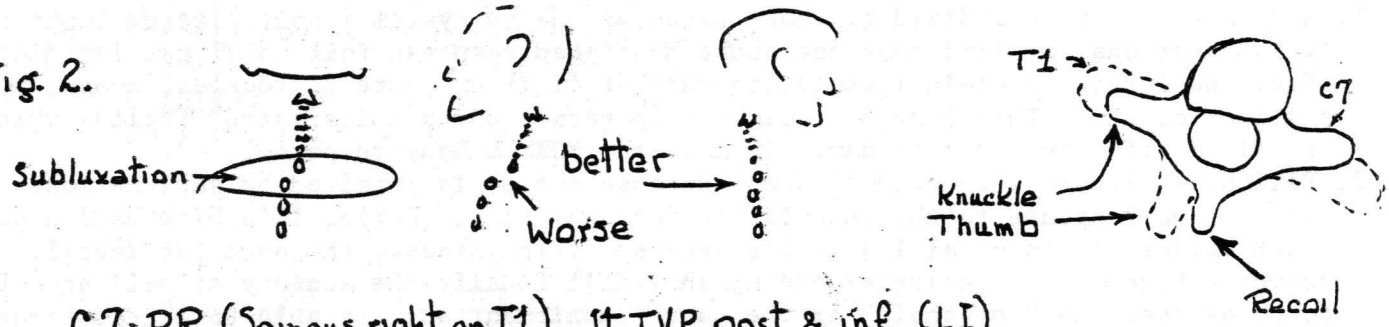
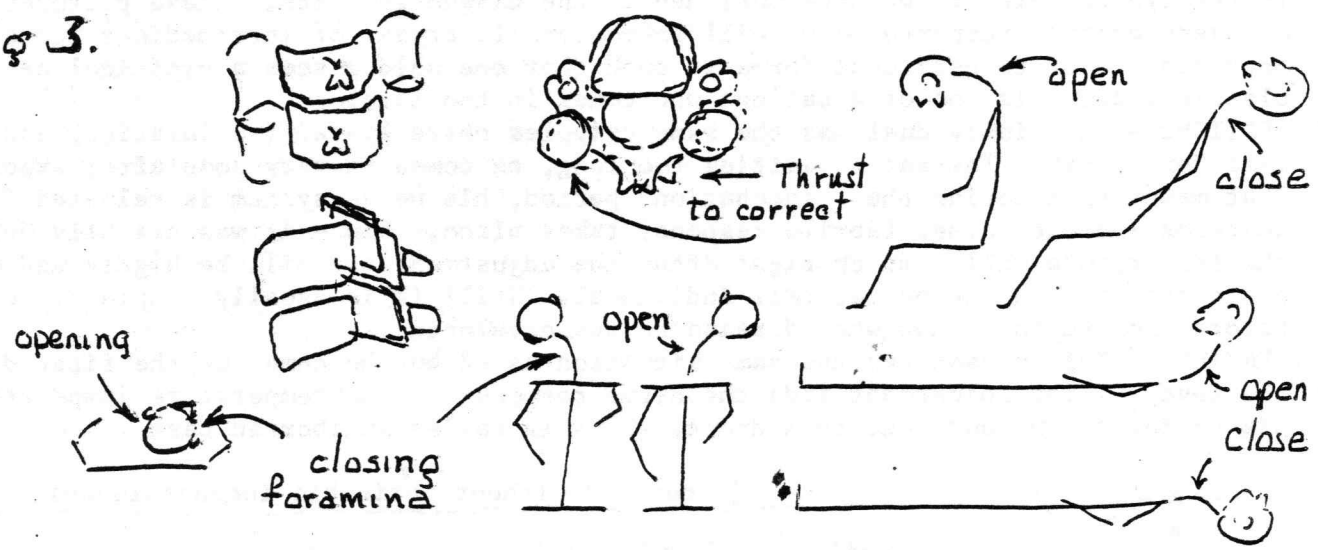


Fig. 2.



C7-PR (Spinous right on T1) lt. TVP post & inf (LI)
T1-PL (Spinous left under C7)

Fig 3.



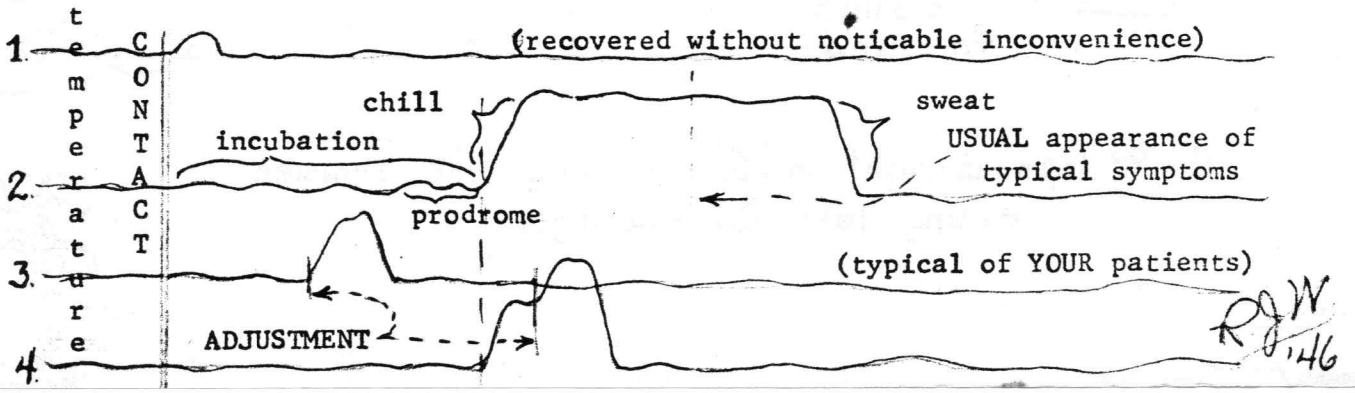
C4 PR (spinous right on C5) occluding left foramen causing left C5 neuralgia

R.J.W. '84

FEBRILE PATTERNS

Fever is an elevation of the body temperature above the usual daily variation. It is usually a defense response to a foreign protein in the body. This increases antibody formation, raises the leukocyte count, enhances agglutination and also attenuates many of the microorganisms into harmless forms. One peculiar picture is that of leukocytosis. When the response is rapid there is not enought time for new leukocytes to be produced in the needed quantities so they are borrowed from other sections of the body. Since most of the foreign proteins are introduced into the viscera, there is a splanchnic leukocytosis and consequent somatic leulopenia. To demonstrate that this is under autonomic nerve control , one leg of an experimental animal was deprived of autonomic innervation. Then a small amount of peptone was introduced. This was followed by a splanchnic leukocytosis, somatic leukopenia in the innervated legs BUT NO CHANGE in the denervated leg. This left THREE DIFFERENT WBC in the same animal at the same time. (Kuntz - Auto. Nervous System, 3d Ed. p.481) All these portions of the defense mechanism are under sympathetic domination. Thus there is an elevation in temperature, pulse rate, systolic pressure, heart rate, respiration rate and metabolism in general as part of the sympathetic syndrome.

1. NORMAL - With this individual whose autonomic nerve system is not altered functionally by subluxations, we find that the above mentioned response follows almost immediately after the foreign protein inoculation whether it is exposure to measles, mumps, polio, smallpox or flu. This leaves a slight temperature and a "dissipated" feeling which usually is gone by the next day. That is the NORMAL body response.
2. PATIENT - With this individual whose defense system is impaired by subluxations there is no response to the inoculation for some time. During this "incubation period" which varies within usual limits for each specific disease, the need for febrile response becomes increasingly more urgent until finally the sensory stimuli are able to break over the "threshold" of the nerve impairment and are able to elicit a much delayed fever. As these stimuli are pounding at the door demanding action they set up such a disturbance that for a day or so there is the characteristic PRODROMAL picture of malaise, languor and lassitude. The patient feels "out of sorts". When the temperature jumps, there is the chill to induce forced muscular activity and added heat retention. Usually the fever persists for a few days before the skin lesions or paralysis becomes apparent. Remember that the normal response was delayed so long that it now must be much more severe than in the normal uninhibited response. This is the type of picture we have outlined in the diagnosis texts. These pictures are of a severe delayed response so we will encounter all stages of intermediate forms. This predominence of transitional forms is such that one seldom sees a classical case. The classic picture is one of a patient who comes in too late.
3. PATIENT - This individual has the same crippled nerve system (subluxation) and the same "exposure". Instead of waiting too long, he comes in very soon after exposure. That means that during the "incubation" period, his nerve system is released from its shackles and the normal febrile response takes place. Since it was slightly delayed, the temperature will jump up right after the adjustment and will be higher and more prolonged than in the normal (#1) individual. Still it is usually completely cleared before the symptoms show what disease he was developing.
4. PATIENT - This person has the same situation as #2 but he comes at the first day of the fever. The adjustment aids the nerve response so the temperature jumps still higher for a few hours and then drops. This is called an aborted case.



The Finger Walk

Dr. Ronald Watkins, D.C.,Ph.C., C.C.R.

What could a "finger walk" possibly have to do with child development? It is a method by which your child or grandchild can walk sooner, talk earlier and learn faster. Many children are unknowingly slowed in their development simply because some movements and exercises were denied to them.

Do you recall the "Crossed Pattern" exercise of coordinated crawling which was clearly demonstrated to induce rapid improvement in retarded children? Dr. Hudson Hoagland at Wooster Institute of Experimental Biology in Massachusetts did one of the earliest convincing projects of this. Dr. Delacato and others have given similar coordinated neuromuscular training which has been very helpful. Yet, what about the apparently normal child? Can he do his best without any training? How do you know that he is normal? Slightly retarded children are usually not discovered until much later than the first year.

You can start a training program which will enhance graceful development long before the child can crawl. You can start the first day of life with this training. The proper name is "Proprioceptive Facilitation to Enhance Neuromuscular Dexterity". Dexterity is the basis of a pianist's finger motion, of an acrobat's agility, of a skater's precision. All of us know that neuromuscular refers to muscular movement and the nerves that drive the muscles. Proprioception is not such a common term. This is the special sense by which we know, even with the eyes closed, whether a hand is open, closed, overhead or pendant. Without this same proprioceptive sensation from the feet and legs, we could not stand with the eyes closed, we would fall over. Hence this is the neurological basis for all skilled movements.

Every muscle has thousands of special nerve endings sensitive to stretching, load and tension. These are sending reports to the spinal cord at a frequency up to one thousand per second from each one of these thousands of "observation stations". Every joint has thousands of similar endings responding to pressure and load. They too are sending reports continually at millions per second when we are asleep. They are reporting at very high frequencies when we are moving about with thousands of millions per second. Fortunately we don't have to sort out consciously the millions of messages per second and make the proper adaptation to the changes of position. This is done by our "super-computers" in the unconscious part of the brain and spinal cord. Still this reporting, this continual adjusting and re-adjusting of hundreds of muscles must be done in order to make any skilled movements.

When a baby is born, the synapses, the spark gaps between individual nerve cells are relatively open. Starting any thought or action the first time is not easy. When an act is repeated, there is a growth of the nerve to close this gap and to form more parallel gaps so that if one gets tired, the traffic can go over the other alternate routes. This makes every repetition easier and is hence called "facilitation". The actual growth process of the nerve is call "neurobiotaxis". Thus we can see that there is an actual physical basis for habit patterns. The more anything is repeated the easier it is to accomplish. With any skill we must use it or lose it. Handwriting is a classic example. So is standing and walking. Now the question again. How does a finger walk help one to sit, stand and walk both sooner and better?

When the child is first put up on the shoulder, long before he can even hold up the head, you can start training every joint in that spinal column. Two fingers placed astride the spinal column, finger tips together, can be lightly pressed to barely move that joint. Now move one finger up about ¼ inch and press with the tip, repeating with each finger as it advances. This will be a definite walking action with the finger tips, not through the yellow pages but up the spinal column. Every light finger tip pressure will gently move the joint and send a flood of impulses, proprioceptive reports, to the spinal cord. You will feel the muscles shift under the fingers with each step. Part of these reports go right up to the conscious brain so that the child is increasingly aware that he has a spine and that it moves. The child will squirm, wiggle and giggle as this is very gently done for about one minute every morning and every night. With this very simple method of exercise, enriched development will be taking place daily. The child will grow and develop at his maximum speed without retardation (if no subluxations are present). Generally, they will sit sooner, stand sooner, walk sooner and more gracefully besides learning to talk sooner. This may not sound possible but many parents have written to verify these findings. One couple has two children, both slightly retarded. They used the crossed-pattern crawling and the Delacato exercises. Both helped somewhat. With their third and fourth children, they started much sooner with the finger walking exercise. Obviously you can start very much earlier with this game. Both these later children did show much earlier learning patterns of every muscular action and much better total mental accomplishment.

When the child is on the shoulder, it is very easy to do this finger walk. When the child is lying prone, it is also easy. This should be done several times every day. As soon as the child can sit up, you can clasp the hands around the waist and use the thumb tips to do the same walk up the spinal column. This can be continued daily for years. In fact, no one is too old to benefit from a few minutes each day from a similar walking exercise. Traditionally, the Bohemians had trained bears to walk up and down the back of adults. Some persons did a similar hand walk up the back which in that country developed into a system called "Napravy". In some countries the mother will hold the small children by the hands so that the child can walk up and down Dad's back when he comes home all tired.

The benefits for adults have been known in many countries for many years but the explanations have varied. Now it is definitely shown to be very helpful with development of very young children. It can be used effectively from 9 days to 90 years without harm if done gently. There will be instances when one area is very stiff or sore after some injury. These will require professional attention. Still every layman can help his own family to remain flexible, to develop at maximum speed and to develop the physical agility which can be trained. Such children can become much more graceful and physically adept. All will be more adaptable and hence will be healthier and more intelligent. That is worth trying.

Don't delay your child's development. Play the game. The name of the game is "Finger Walk".